Conclusion

By dividing the U.S. economy into regions, we notice that the public sector is multi-tiered, and the structure of each tier, as well as the interaction among the different levels of government, can have profound effects on equity and efficiency of the market economy. We have explicitly modeled the size of the public sector and significant features of what has been called the technological externality elements of the tax system.

With this modeling framework, the analyst can create up to 51 distinct economic regions in the U.S. economy, with 10 regions examined in this report. Each region has seven distinct industrial outputs and consumer goods. Industries employ as many as nine different primary factors of production, with several factors in corporate and noncorporate legal forms. Incorporation and unincorporation decisions are exogenous, so corporate and noncorporate factors remain fixed. Primary factors of production are perfectly mobile within a region but cannot leave the region. Industry output is tradable, both within the region and with other domestic regions and abroad. The price of output produced in a region reflects the industry-level costs of production and taxes, while the prices of industry output and consumer goods from other domestic regions reflect the same factors, plus transportation costs, which are determined endogenously. Regional tax bases include factor income, industry output, personal income, and personal consumption. The level of Federal and regional taxation is fixed at an exogenous level, consistent with 1994 Federal budget figures. The Federal tax bases are the same as regional tax bases, plus a border tax program.

Some important stylized facts emerged regarding the disposition of regional primary factors and regional State and Federal tax incidence. Notably, the smallness of food and farm industries nationwide obscures the fact that, in several regions, value added from capital in food and farm industries expands the capital income of these regions by between 7 and 11 percent. The primary competitor for noncorporate factors of production with agriculture is the services, mines, and trade and construction industries, which use both corporate and noncorporate capital. Food manufacturers face these same competitors, plus other manufacturers. Food and farm industries are the most capital intensive, with capital/labor value-added ratios ranging from 1.0 to 1.4, compared with 0.6 to 0.8 in other industries. Farmland is by far the most important factor of farm production, particularly for cash grain farms, and farms face no outside industry competition for their land. Food manufacturers are most reliant on heavy machinery for production. Food and farm industries are major employers of heavy machinery in the Northern Plains, Lake States, and Appalachian regions.

Two important findings on tax incidence emerged in this report. Farms are a favored industry, in terms of taxation at the Federal level. In every region, farms have the most lightly taxed factors of all industries. In every region except the Delta, farms are the most highly taxed industry by regional governments, and in the Northeast, regional marginal taxation of farm factors exceeds Federal marginal taxation. Overall, there are disparities in tax rates between labor and capital, between types and legal forms of capital, between industries, and between regions. Similar disparities exist between consumption and savings decisions, and across regional households on their personal income. The surprisingly high incidence of regional factor taxation indicates that effects of reforming the tax system depend on whether it is a harmonized reform of Federal and regional tax systems, or if it is unilateral reform of one or the other layer of government.

While tax reform analysis was not the subject of this report, we did carry out a generic transformation of the U.S. tax system, a flattening of factor taxes. These results clearly indicate the multiple dimensions of economic response to fiscal policy. Notably, relative tax burden disparities, including intersectoral, interregional, and intertemporal, have profound implications on resource allocation and distribution of welfare. Yet terms of trade, resource scarcities, and international investment flows can have conflicting effects on many economic indicators. This substantiates the assertion that an applied general equilibrium framework is ideally suited for assessing fiscal policy effects on food producers and consumers.

Like any research program, developments and refinements to this research are ongoing. We are focusing on the representation of labor services in the model and refining our account of regional sales taxes and regional and national excise taxes. Regarding labor services, two improvements are underway. First, efforts are underway to allocate labor value added between skilled and unskilled labor units. Also, an explicit account of the noncorporate, proprietorship, hired labor force will be made to refine our measurements of labor income and wage tax rates by industry. Regarding sales and excise taxes, our assumption that these taxes do not discriminate against any consumer good or producer good is clearly in error. Some regions exempt taxes on goods such as retail sales of food and prescription drugs, and some regions target output taxes, such as severance, tobacco, and alcohol. Such accounts, however great or small, will be a part of future editions to the model data set. As mentioned previously, an extension to a dynamic modeling framework would enhance our ability to account for the effects of taxation on the interregional and international flow of investment capital. Plans to extend the model and data in this area are also underway. An important part of this extension is the ability to specify a nonunitary price-elastic demand for investment goods (supply of savings). Other extensions and refinements will be determined by the types of applications for which the model is employed.